ON THE DETECTION OF GLACIAL STRIÆ IN REFLECTED LIGHT.

It is known that in many regions of glaciation, owing to the softness or attitude of the country, particularly in the case of schists, all traces of bed-rock striæ have seemingly been effaced by post-glacial weathering. The country about Orange, a little west of the north central part of Massachusetts, affords a good example of the case in point. The rocks are soft gneisses and hornblende schists. They strike nearly north and south and dip about vertically, or, in other words, stand on edge. Their very attitude, combined with the local variation in mineralogical composition and texture, due to the banding in the gneiss, has enabled the process of weathering to work at its maximum rate. As a result, the surface of the rock, wherever exposed, is corroded to extreme roughness, and often longitudinally pitted, so that on the rock itself about all trace of striæ has vanished. Also the approximate coincidence of direction between the striæ and the strike or banding in the gneiss renders any trace of weathered striæ which may remain not only difficult of detection, but unsatisfactory to the geologist, even when found.

There is, however, a means of determining the direction of ice-movement in this region. Happily the rocks are traversed here and there by quartz veins of moderate size. These veins being more resistant, often stand out in bold relief above the enclosing rocks now weathered down at their sides. They have retained not only their ice-polished surface, but this surface is often found to be well marked by sharply defined striæ and very fine parallel scratches, concerning whose origin the lens leaves no doubt.

These scratches sometimes occur in such delicacy as to render detection by the unaided eye difficult in ordinary light. By chance it was observed that in reflected sunlight the most delicate become readily visible, even at several yards distant. The distinctness with which the striæ are brought out is due to the marked contrast produced by difference of reflection between the unstriated part of the ice-polished surface, which strongly reflects the light, and the striæ themselves, which do not reflect, but appear as opaque or dark lines in a bright shining background.

Further observation seems to show that this means of detecting striæ can in many cases be used to advantage, especially where the surface to be examined is of considerable extent, the task of observation being materially facilitated without impairment of reliability. The striæ show best when observed in the direction of their drift trend, and with the angle of reflection large, forty-five or more degrees.

The above observations were made early in April in connection with a visit to Mount Monadnock, in New Hampshire; a covering of snow and ice preventing the taking of similar observations on the mountain at the time. It has since been learned, however, from Mr. C. L. Whittle, who has made a specialty of ice-movement over this mountain, that, as in the region of Orange, the striæ are now chiefly limited to the exposed edges of quartz veins traversing the granitic gneisses and other rocks which constitute the mountain. F. C. Schrader.

Cambridge, Mass., May 2, 1896.

---

*OCCURRENCE OF UINTAITE IN UTAH.**

The name Uintaite was given to the hard asphaltic substance to be discussed, by Prof. W. P. Blake in 1885. Subsequently it acquired the name Gilsonite, after a Mr. S. W. Gilson, of Salt Lake.

In appearance Uintaite is jet black, of

* Read by Mr. George H. Eldridge before the Geological Society of Washington, January 8, 1896, and reported with the author's approval by Dr. W. F. Morsell.